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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,226

04/07/2006

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P/63773

7074

156 7590 10/01/2008  
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EXAMINER

DOBSON, DANIEL G

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

10/01/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,226	<b>Applicant(s)</b> FELLA ET AL.	
	<b>Examiner</b> DANIEL G. DOBSON	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/07/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 21-23, 25, 27, 30-32, 34, 36 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2002/0196527 A1 to Veith.

As to **Claim 21**, *Veith* discloses a means for controlling optical amplifier gain (Fig. 5, amplifier system for controlled gain equalization), comprising:

a) a source for generating a gain control signal (Fig. 5, BFP, Brillouin pump injects the signal controlling the amount of SBS);

b) an optical amplifier for receiving at least one optical input signal channel at a first end (Fig. 5, input signal S1 entering on one end);

c) means for providing the gain control signal to the optical amplifier at a second end thereof (Fig. 5, Brillouin pump is provided to the amplifier by coupler (c4) at the second end of the amplifier); and

d) the source being arranged to generate the gain control signal at a power level that produces stimulated Brillouin scattering in the optical amplifier

(¶¶ 9-10, the Brillouin pump stimulates SBS in the waveguide, providing gain to the desired signal.)

As to **Claim 22**, *Veith* discloses control means for identifying a change in an input signal and for varying the power level of the gain control signal to compensate for the identified change (¶¶ 39, 24-25, the intensity of the pump light is controlled via a closed loop control circuit to obtain the desired amplification.)

As to **Claim 23**, *Veith* discloses monitor means for monitoring a power of the input signal and for varying the power level of the gain control circuit to compensate for changes in the monitored power (¶¶ 39, 24-25, the intensity of the pump light is controlled via a closed loop control circuit to obtain the desired amplification.)

As to **Claim 25**, *Veith* discloses wherein the gain control signal (Fig. 6, P6) falls within the gain bandwidth of the optical amplifier (Fig. 6, CR, solid bold line.)

As to **Claim 27**, *Veith* discloses wherein the amplifier is a Raman amplifier (¶¶ 38-40.)

As to **Claim 30**, *Veith* discloses a means for controlling optical amplifier gain (Fig. 5, amplifier system for controlled gain equalization), comprising:

a) introducing at least one optical input signal channel into the first end of an optical amplifier (Fig. 5, input signal S1 entering on one end);

6) generating a gain control signal and introducing the gain control signal at a second end of the optical amplifier (Fig. 5, BFP, Brillouin pump injects the

signal controlling the amount of SBS, and is provided to the amplifier by coupler (c4) at the second end of the amplifier); and

d) generating the gain control signal at a power level that produces stimulated Brillouin scattering in the optical amplifier (¶¶ 9-10, the Brillouin pump stimulates SBS in the waveguide, providing gain to the desired signal.)

As to **Claim 31**, *Veith* discloses identifying a change in an input signal and for varying the power level of the gain control signal to compensate for the identified change (¶¶ 39, 24-25, the intensity of the pump light is controlled via a closed loop control circuit to obtain the desired amplification.)

As to **Claim 32**, *Veith* discloses monitoring a power of the input signal and for varying the power level of the gain control circuit to compensate for changes in the monitored power (¶¶ 39, 24-25, the intensity of the pump light is controlled via a closed loop control circuit to obtain the desired amplification.)

As to **Claim 34**, *Veith* discloses wherein the gain control signal (Fig. 6, P6) falls within the gain bandwidth of the optical amplifier (Fig. 6, CR, solid bold line.)

As to **Claim 36**, *Veith* discloses wherein the amplifier is a Raman amplifier (¶¶ 38-40.)

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 24, 24, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0196527 A1 to Veith and U.S. Patent 5,598,289 to Watanabe.

As to **Claims 24 and 33**, *Watanabe* discloses obtaining information at the at least one input signal channel from and optical supervisory channel (Col. 10, ll. 50-8.)

*Watanabe* and *Veith* are from the same art with respect to optical communications, and are therefore analogous art.

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to use a supervisory channel to obtain information about input signal channels in the system disclosed by *Veith*. The suggestion/motivation would have been to quickly detect points of trouble or other interference in the transmission system.

As to **Claims 26 and 35**, *Watanabe* discloses means for monitoring the power level of the gain control signal (Fig. 28, 196, 199.)

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to monitor the gain control signal (SBS injection light) in the system disclosed by *Veith*. The suggestion/motivation would have been to be able to quickly diagnose a failure by the pump.

5. Claims 28, 29, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0196527 A1 to Veith and U.S. Patent 6,441,950 B1 to Chen et al.

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As to **Claims 28, 29, 37 and 38**, *Chen* discloses that distributed Raman amplifiers and rare earth doped amplifiers are commonly used in communications systems (background and summary of the invention.)

*Chen* is from the same art with respect to optical communications, and is therefore analogous art.

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to use a distributed Raman amplifier and/or a rare earth doped fiber amplifier in the system disclosed by *Veith*. The suggestion/motivation would have been to use available parts and well established technology.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. DOBSON whose telephone number is (571)272-9781. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel G. Dobson/  
Examiner, Art Unit 2613

/Kenneth N Vanderpuye/  
Supervisory Patent Examiner, Art Unit 2613